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HEALTH MATTERS.

The Diaphanous Test of Death.

DR. BENJAMIN WARD RICHARDSON, in the last *Asclepiad*, speaks of a paragraph making the round of the scientific and general press which must be accepted *cum grano*. In this paragraph, according to the *Boston Medical and Surgical Journal*, it is stated that the French Academy of Sciences ten or fifteen years ago offered a prize of \$8,000 for the discovery of some means by which even the inexperienced might at once determine whether in a given case death had or had not ensued. A physician obtained the prize. He had discovered the following well-known phenomenon. If the hand of the suspected dead person be held towards a candle or other artificial light with the fingers extended and one touching the other, and one looks through the spaces between the fingers towards the light, there appears a scarlet red color where the fingers touch each other, due to the blood still circulating, and showing itself through the tissues, if life have not yet ceased. When life is entirely extinct, the phenomenon of scarlet space between the fingers at once ceases. The most thorough trials, it was said, had established the truth of this observation.

Dr. Richardson says that in his essay on absolute proofs of death he has described this test with the others, and has attached to it its true value. The statement that the test is sufficient of itself is, however, too solemn to be allowed to go without correction; and he therefore affirms, with all possible earnestness, that the test, trusted to alone, is capable of producing the most serious error. In the case of a person in a state of syncope, where the test was most carefully applied, there was not the faintest trace of red coloration between the fingers; yet recovery from the syncope was quite satisfactory without any artificial aid. The test is one which admits of being readily tried, and, *prima facie*, it is a good test to bring into operation. But as an absolute proof of death Dr. Richardson would put before it, (1) the pulsation of the heart, (2) the respiratory murmur, (3) pressure on veins, (4) the electric test for muscular irritability, (5) the ammonia hypodermic test, (6) coagulation of blood in the veins, (7) rigor mortis, and (8) decomposition.

Impurities under Finger-Nails.

The progress of bacteriology has shown that aseptic surgery means scientific cleanliness. The same lines of investigation show how very dirty people can be. Seventy-eight examinations of the impurities under finger-nails were made in the bacteriological laboratories of Vienna, and the cultivations thus produced showed thirty-six kinds of micrococci, eighteen bacilli, three sarcinæ, and various varieties. The spores of common mould were very frequently present. The removal of all such impurities is an absolute duty in all who come near a wound. It is not enough to apply some antiseptic material to the surface of dirt: the impurity must be removed first, the hand antiseptized after. Some physicians, when intending to drain dropsical legs by acupuncture or other methods, are very careful to use antiseptic dressings, and in such cases have the feet and toe-nails purified and rendered aseptic as far as possible. It is sometimes said that the scratch of a nail is poisonous. There is no reason to suspect the nail-tissue: it is more likely the germs laid in a wound from a bacterial nest under the nail. Children are very apt to neglect to purify their nails when washing hands; and this matter is not always sufficiently attended to among surgical patients. Personal cleanliness is a part of civic duty, and, as Dr. Abbott well expressed the matter in his address to teachers, should be taught to school-children, and insisted on in practice. The facts we have recorded might well form the text for a school homily, especially when any epidemic was in the neighborhood.

Some Cases of Prolonged Want of Food.

A correspondent of *The Lancet* writes as follows on this subject: "The name of Gen. Colletta, author of the 'History of the Kingdom of Naples from 1734 to 1825,' is one of the most respected in the annals of modern Italy, and his reputation for discernment and veracity may fairly be placed on a level with that of the Duke

of Wellington in our own country. His description of the terrible earthquake which in 1783 devastated Calabria, and was severely felt throughout the Kingdom of the Two Sicilies, is of unquestioned authority, and from it the following incidents are extracted. They refer only to persons and animals imprisoned beneath the ruins caused by the earthquake. It is only necessary to add that the facts were ascertained by Gen. Colletta's personal investigations at the scene of the catastrophe. 1. A female child, eleven years of age, was extricated on the sixth day and lived; and another girl, sixteen years of age, Eloisa Basili, remained underground for eleven days, holding in her arms an infant which had died on the fourth day, so that it was decomposed and putrefied at the time of her rescue. She was unable to free herself from the shocking burden in her arms, so closely were they hemmed in by the fallen wreckage. 2. More wonderful still, as regards duration of life, were certain cases that occurred among animals. Two she-mules existed under a heap of ruins, the one twenty-two days, the other twenty-three; a fowl lived for twenty-two days; and a pair of hogs, which were completely entombed, remained alive thirty-two days. The human beings who had undergone these unwonted privations, when interrogated as to their sensations, replied, 'I can recollect only up to a certain point, and then I fell asleep.' When it is remembered that all the creatures thus circumstanced were deprived entirely of water or other liquids, it is hardly to be wondered at, that, though there was no desire for solid food, they displayed on their liberation an insatiable thirst, and, the author adds, partial blindness,—*sete inestinguibile e quasi cecità*."

Long-Immersed Human Subject.

A very interesting report has just been issued by Dr. König of Hermannstadt, on the state in which the human subject, after forty years' immersion in water, may be found by the physiologist. In the revolutionary upheaval of 1849, a company of Honvéds, as the Hungarian militia are called, having fallen in the vicissitudes of war, were consigned to the waters of the Echoschacht, a pool of considerable depth not far from Hermannstadt. Their bodies, as we learn from the *Lancet* of Aug. 9, 1890, have recently been brought up to the light of day, and subjected to a careful and minute investigation from the physiologist's point of view. Dr. König found them in perfect preservation, without a single trace of any decomposing process. Externally they had the appearance of having been kept in spirit. The epidermis was of a whitish-gray color; the muscles, rose-red, feeling to the touch like freshly slaughtered butcher's meat. The lungs, heart, liver, spleen, kidneys, bladder, stomach, and alimentary canal were of the consistency of those in a newly deceased corpse; while the brain was hard and of a dirty-gray color, as if preserved in spirit. Structurally the organs retained their outline perfectly, and were so easily recognizable in tissue as well as configuration, that, according to Dr. König, they might have been exhibited for "demonstration" in an anatomical lecture-room. After forty-one years under water, these are indeed remarkable phenomena. The large intestine contained fæces of a yellowish-brown color, quite unaltered and inodorous; while the bladder was partially filled with straw-colored urine. But perhaps the most significant feature disclosed by these corpses is the following: in their interior a large amount of chloride of sodium, crystallized in cubes, had been deposited and fixed on the several tissues and organs, and this salt had not penetrated mechanically into the dead bodies from without. In the completely closed and perfectly unimpaired pericardium, and also on the outer surface of the heart itself, crystals of the same kind were found. This, according to Dr. König, clearly shows, that, in the water, particles held in solution may pass through the skin and the muscles, and find their way into the most deeply seated organs. Herein, he adds, we have confirmatory proof, if such were needed, that the specific virtues of mineral baths exercise in this way their salutary effect on the internal economy of the bather. There is a notable difference, however, between the time spent in the bath by an ordinary bather at a "Curort" and the forty-one years during which the Honvéds remained under water. The phenomenal quietness of the Echoschacht may also have been a material factor in this impregnation

of the corpses with chloride of sodium. But, with every allowance for such considerations, Dr. König has furnished a striking illustration of the permeability of the immersed human subject to salts in solution, and it is to be hoped that his painstaking researches will lead to others in the same important direction.

Medical Students Abroad.

Human beings are so much like sheep in their habit of following where their predecessors have led, says *Medical News* of Aug. 30, 1890, that it seems almost useless to attempt to divert their course from the clinics of Vienna or Berlin to those of London, Liverpool, or Edinburgh. Yet any one who has studied both on the continent of Europe and in England must have been impressed with a number of advantages possessed by English study over those offered in still more foreign lands. The advantage of the mother-tongue is inestimable. Very few Americans who do not possess German blood know enough of the German language to understand the terms used by a rapid lecturer in the Fatherland; and, if they do not, they lose that which they chiefly desire, namely, the minute points of the subject before them. The average American going to one of the continental clinics receives most of his instruction from docents, or other instructors of a comparatively low grade, simply because he is one of hundreds who not only throng around the chief, but overflow to the subordinates; while in England, notably in London, the number of eminent men is so great, and the percentage of foreign students so small, that each and every one can sit at the feet of the teacher whose writings are known everywhere in the civilized world. While the student in Berlin or Vienna becomes imbued with the views of the single individual governing a given course, in London he may go from hospital to hospital and obtain different views, and in consequence become a man of broader ideas and greater resource.

LETTERS TO THE EDITOR.

. Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.

The editor will be glad to publish any queries consonant with the character of the journal.

On request, twenty copies of the number containing his communication will be furnished free to any correspondent.

On the Minerals contained in a Kiowa County (Kansas) Meteorite.

A REMARKABLE group of meteorites has been discovered during the past year in Kiowa County, Kan. In March last a small fragment was identified by the author as being of meteoric origin, and steps were taken by Dr. F. H. Snow of the Kansas State University, Professor F. W. Cragin of Washburn College, and others, to obtain some of these masses.

The history of this find has been described by Dr. Snow (*Science*, May 9, 1890) and by George F. Kunz (*Science*, June 13, 1890). The latter writer, to whom a large number of the specimens of this fall belong, describes some very carefully, and gives some analyses of the minerals contained. In *Science*, July 18, 1890, another specimen, more recently found at this locality, is described. This as well as others noticed belongs to the class known as "pallasites." Its weight is two hundred and eighteen pounds and a quarter.

It is an irregular triangular pyramid about twenty-two inches in height, with a maximum width of seventeen inches. As it was well buried in the mud, one side of it presents numerous cavities in which are crystals that have not been destroyed by handling or by the action of the elements. One of these cavities is four inches in diameter and two inches deep. Nearly all these cavities are filled with more or less perfect crystals of light-yellow olivine and chromite.

The general color of the meteorite is a mottled reddish black, but it is redder than other specimens of this group that we have seen.

The specific gravity of the whole mass was 4.79, showing that there is not as much iron as in some of the specimens reported. A dirty-white incrustation was noticed at several places on the surface. This proved to be calcium carbonate, and is no doubt

due to a deposit from the calcareous soil in which the mass was buried. A polished section shows the usual Widmannstättian figures after treatment with nitric acid.

Some quite perfect crystals of yellow olivine were secured. There is much more of an almost black variety of this mineral. Of the latter no analysis was made, as it did not seem possible to secure a uniform sample. It is suggested by Mr. Kunz that this zone is a mixture of olivine and troilite. The yellow olivine has a fusibility of 5+, blackens before the blowpipe, is attracted by the magnet after ignition but not before, gives the usual iron reaction with the borax bead, and is soluble in nitric acid with separation of gelatinous silica. It has conchoidal fracture and vitreous lustre. The analysis is as follows:—

SiO ₂	38.38
FeO.....	13.55
MgO.....	46.21
MnO.....	.29
Cr ₂ O ₃61
S.....	a trace
Loss on ignition.....	.82
	99.86

The chromite, which is found in crystals and masses lining the cavities above mentioned, is iron-black in color, with a brilliant lustre. It is brittle, gives a brown streak, and is slightly magnetic after ignition. It gives the usual emerald-green bead with borax. It is not acted upon by acids. Some of the masses are one third of an inch in diameter. In most of these cavities there are about equal quantities of olivine and of chromite. The analysis is as follows:—

SiO ₂	1.42
CaO.....	0.78
MgO.....	6.11
FeO.....	23.21
Al ₂ O ₃	0.25
MnO.....	a trace
Cr ₂ O ₃	67.83
Loss on ignition.....	.24
	99.84

The iron-nickel alloy, as shown on a polished surface, is intimately associated with the troilite. Its specific gravity is 7.70. It has the following composition:—

Iron.....	88.08
Nickel.....	11.04
Cobalt.....	.56
Sulphur.....	.10
Phosphorus.....	.11
Silicon (?).....	.05
Copper.....	a trace
	99.94

A specimen of troilite from the 54.96 pound meteorite of this group was also examined in our laboratory. It could not be picked clean from iron and olivine. After excluding silica and magnesia of the olivine, the composition corresponded quite closely with the analyses of troilite as reported in Dana's "Mineralogy."

This specimen is remarkable on account of the size of the depressions on its surface, and the fact that these depressions contain such pure crystals and masses of both olivine and chromite. In the interior the olivine occurs in rounded grains, filling the cavities of the iron.

E. H. S. BAILEY.

Lawrence, Kan., Aug. 15.

The Unit Measure of Time.

ON the question of a name for the time-unit, referred to in an article by Dr. Sanford Fleming of Ottawa, in *Science* of Sept. 26, I see nothing better for what he wants named than "mean solar day." No suitable word of classical derivation occurs to me after thinking of the matter; and I find "mean solar day" as little objectionable as "tropical" or "sidereal," etc., "year." The best time-unit would probably be a pendulum-oscillation (of a given length) vibrating *in vacuo* at the pole of the earth.

C: MACDONALD.

Dalhousie College, Halifax, N.S., Oct. 1.